

Notice of Allowability

Application No.

09/642,620

Examiner

Kevin M Bernatz

Applicant(s)

WESTWOOD, JOHN DAVID

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to interview of 11/19/04.
2. ☒ The allowed claim(s) is/are 1,2,11,14,24 and 25.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 02/27/2004.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 11222004.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with William Gill on November 19, 2004.

The application has been amended as follows:

- Claim 1, lines 2 - 3: the phrase "one element selected from the group consisting of" was deleted;
 - Claim 1, line 3: after "Fe", the phrase ", Co, and Ni" was deleted;
 - Claim 1, line 5: the phrase "O, and C" were replaced with "and O-N";
 - Claim 1, lines 6 - 7: the phrase "an amorphous material selected from the group consisting of" was deleted;
 - Claim 1, lines 7 - 8: the phrase: "SiO₂, ZrO₂, ... , SiC and Si₄N₄" was deleted;
 - Claim 1, line 9: after "alloy", the following phrase was inserted: "and has a thickness of 0.4 – 1.7 Å; and wherein said magnetic alloy has a total thickness of 1000 – 3000 Å";
- Claims 3 – 10 were deleted;
- Claim 11, line 1: before "film", the word "magnetic" was inserted;

- Claim 11, lines 1 – 3: the phrase “structure having ... of a different material” was replaced with “according to claim 1”;
- Claim 11, line 3: before “comprising”, the word “further” was inserted;
- Claim 11, line 4: after “target”, the phrase “of Fe-Al” was inserted;
- Claim 11, line 5: “a” was replaced with “the” and “material” was replaced with “alloy T-M-X”;
- Claim 11, line 6: “after “target”, the phrase “of Al₂O₃” was inserted;
- Claim 11, line 7: “a” was replaced with “the”;
- Claim 11, line 8: after “gas”, the phrase “selected from the group consisting of N₂ and N₂O” was inserted;
- Claim 11, line 9: before “film”, the word “magnetic” was inserted and the word “structure” was deleted.
- Claims 12 and 13 were deleted;
- Claim 14, line 1: the dependency was changed from “claim 13” to “claim 11”;
- Claims 15 – 23 were deleted;
- Claim 24, lines 4 – 5: : the phrase “one element selected from the group consisting of” was deleted;
 - Claim 24, line 5: after “Fe”, the phrase “, Co, and Ni” was deleted;
 - Claim 24, line 7: the phrase “O, and C” were replaced with “and O-N”;
 - Claim 24, line 8: the phrase “a material selected from the group consisting of” was deleted;

- Claim 24, lines 9 - 10: the phrase: "SiO₂, ZrO₂, ... , Ta, Zr, and Hf" was deleted;
- Claim 24, line 10: after "alloy", the following phrase was inserted:
"embedded within the magnetic alloy and has a thickness of 0.4 – 1.7 Å; wherein said magnetic alloy has a total thickness of 1000 – 3000 Å";
- Claim 26 was deleted.

Reasons for Allowance

3. The present claims are deemed allowable over the references of record since the references of record fail to disclose or render obvious the unexpected results shown by applicant.

While the prior art of record disclose the general concept of magnetic layers separated by discontinuous alumina layers, the prior art of record fails to disclose or render obvious the unexpected improvement in the magnetic properties, especially H_{ce} and H_k, shown by applicant when a Fe-M-X alloy meeting the claimed limitations is used with 0.4 – 1.7 Å discontinuous alumina nanolaminations, forming a magnetic film possessing a thickness of 1000 – 3000 Å.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner's Comments

5. In order to better clarify the record, the examiner wishes to point out Gill et al. (U.S. Patent No. 6,278,590 B1) and Ishiwata et al. (U.S. Patent No. 5,736,264) disclose Fe-M-N alloys interfaced with alumina layers, but neither teach or render obvious the unexpected results when using alumina layers having a thickness of 0.4 – 1.7 Å.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin M. Bernatz, PhD.
Primary Examiner

November 22, 2004